

Australian Journal of Teacher Education

Volume 44 | Issue 7

Article 2

2019

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Recommended Citation

Loughland, T., & Alonzo, D. (2019). Teacher Adaptive Practices: A Key Factor in Teachers' Implementation of Assessment for Learning. *Australian Journal of Teacher Education*, 44(7).
<https://dx.doi.org/10.14221/ajte.2019v44n7.2>

This Journal Article is posted at Research Online.
<https://ro.ecu.edu.au/ajte/vol44/iss7/2>

Teacher Adaptive Practices: A Key Factor in Teachers' Implementation of Assessment for Learning

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Abstract: The Assessment for Learning disposition has been long established in the literature as a desirable attribute for teachers. To use the biological metaphor of adaptation, assessment for learning has been argued to be a key base pair on the teacher genome. We argue that the selection of the correct genotype for teachers is not enough. What is needed is empirical confirmation that these genotypes are expressed in the appropriate phenotypes, or teacher practices. The data in this study were generated from interviews that explored the phenotype, or practices, of six teachers who self-selected for the favoured genotype using the Teacher Assessment for Learning Literacy Tool. The findings indicate that the Assessment for Learning genotype was not always expressed in the phenotype, or practices of these six teachers. The selective environmental pressure of the Teacher Assessment for Learning Literacy Tool was not enough to activate plasticity in all the teachers. The implications are that there may need to be a combination of environmental pressures in the form of teacher professional learning interventions using the Teacher Adaptive Practice scale in concert with the Teacher Assessment for Learning Literacy Tool as well as an internal mechanism like a teacher selection tool that discriminates between rigidity and plasticity in a teacher's disposition.

Introduction

An Assessment for Learning disposition has been long established in the literature as a desirable attribute for teachers. To use the biological metaphor of adaptation, assessment for learning has been argued to be a key base pair on the teacher genome. In this paper we argue that having the correct genotype for Assessment for Learning (AfL) is not enough. What is needed is empirical confirmation that these genotypes are expressed in the appropriate phenotypes, or teacher AfL practices in the classroom.

The biological concepts of genotype and phenotypes are employed as part of the adaptation metaphor adopted for this paper. They are generative as they focus attention on how the genotype of teaching principles are expressed in the phenotype of a teacher's classroom practice. The acclimation of teaching strategies such as AfL in the classroom is dependent on the plasticity of the teacher's phenotype. A rigid phenotype will prompt a literal and direct translation of the teaching principles of AfL whilst a plastic phenotype on the part of the teacher will enable an adaptive implementation of the AfL that is responsive to the students in the classroom.

The infidelity of teachers' genotypes with their actual classroom practices, or phenotypes, has long been a concern in the teacher professional research literature. The

common name for this infidelity is the theory-practice gap. Explanations for the theory-practice gap range from theory being too abstract to the ossification of practice. Both ends of the continuum accentuate the false binary of a reality that is always a mix of practice and theory, albeit with a theoretical foundation that is not always explicit (Goodlad, 1990). What is required is a theoretical explanation of how pedagogical theories such as AfL are implemented in some classrooms and not in others.

Teacher Adaptability is one theory that might explain the fidelity of teacher's implementation of AfL in the classroom. Adaptability is an important disposition for teachers in the complex world of education (Collie & Martin, 2016a). It refers to a teacher's ability to change, adjust and modify their practice in response to variability, novelty and uncertainty (Martin, 2017; Martin, Nejad, Colmar, & Liem, 2012; Martin, Nejad, Colmar, Liem, & Collie, 2015). Teacher adaptive practices are the expression of this adaptive disposition in the classroom (Author, 2016; Author, 2018). Adaptive practices determine the fidelity of the implementation of key teaching strategies such as assessment for learning in the classroom.

This study focuses on the classroom implementation of the Teacher Assessment for Learning Literacy Tool (TAfLLT) with six teachers. The TAfLLT was designed as a teacher professional learning tool to promote the implementation of AfL principles in the classroom. It was developed as a PhD project (Author, 2016) and has been used in Brunei, Philippines and Australia to effectively introduce teachers to the principles and practices of AfL. The tool, framed as rubrics with five level of performance standards, was developed using theoretical and empirical approaches and all its psychometric properties meet the standard measures (Author, 2016). The tool is intended for teachers' self-reflection to determine their perceived level of AfL literacy and to identify their next goal in professional learning.

Literature Review

The emphasis of this study is on the implementation of the TAfLLT by teachers. Hence, this paper reviews the acclimation conditions necessary for this implementation as can be inferred by the design of the TAfLLT. This review begins by examining the relationship between AfL and the acclimation of the TAfLLT. Then, the theoretical foundation of teacher adaptive practices is explained as it is integral to an understanding of the of the TAfLLT in this study. The metaphors of genotype, phenotype, plasticity and acclimation are employed throughout the review in line with the biological metaphor of adoption adopted in this paper.

Assessment for Learning and the Acclimation of TAfLLT

The TAfLLT is informed by the principles of AfL. In this perspective, teachers use assessment as a tool to support students in their learning, give greater responsibility to students in terms of monitoring their learning, and develop a learning environment in which students are actively engaged in making decisions related to their learning. In addition, teachers establish a community of practice to support each other in their on-going AfL literacy development. Lastly, teachers use AfL skills that are appropriate within the social, cultural and economic context of their educational system.

To facilitate these interactions, teachers who are using AfL principles need to view students not as mere passive receivers of external knowledge but rather as socially active individuals who see knowledge as a dynamic output of interactions (Gipps, 1999). The move of the Assessment Reform Group (1999) to use the term 'assessment for learning' instead of 'formative assessment' emphasised the key role of students in assessment as primary

participants, and not just passive recipients of assessment processes and outcomes. This change in focus signalled a subtle conceptual modification of the contemporaneous research on formative assessment (Black & Wiliam, 1998). This reconceptualization re-defined the students' role in learning as active collaborators and co-participants in constructing their knowledge and skills within the context of learning (Lave & Wenger, 1991).

One indicator of a good teacher-student relationship is that success and failure in learning are a shared responsibility of teachers and students (Marshall & Drummond, 2006). This shared responsibility reinforces both the roles of teachers as activators of learning (Hattie, 2009) and the role of students as independent learners. In addition, as teachers assess the performance of students, they can identify if there is a mismatch between their expectations and student output. The identified mismatch can facilitate teachers' reflective thinking to evaluate their practices and other components of learning and teaching activities and use the results of their reflection to adjust their teaching, success criteria, and their expectations to appropriately meet the needs of students. This regular reflection and adaptation of teachers enhances their skills in the use of assessment information to inform learning and teaching.

The interactions of a teacher community of practice is critical to the successful acclimation of the TAfLLT genotype. The effects of these teacher interactions to student learning are shown by the study of Goddard, Goddard & Tschannen-Moran (2007), in which they found that the level of teachers' collaboration influences student achievement. This is because teachers who are actively engaged in discussions around curriculum, instruction, and assessment are using context-based learning and teaching practices.

Finally, the social, cultural and economic context of an educational system will affect the acclimation of the TAfLLT genotype. Davison (2013), leading large-scale assessment reforms in Hong Kong, Brunei, and Singapore, attributed the success or failure of these initiatives to a shared understanding of AfL principles and practices across schools and all levels of bureaucracy. This review now examines an internal factor in the form of teacher adaptability that may impact upon the successful acclimation of the TAfLLT genotype.

Teacher Adaptability and the Acclimation of TAfLLT

Teacher adaptability has emerged in recent years as an important disposition for effective teachers. Like AfL, it may emerge as another integral base pair on the teacher genome. This study is concerned with classroom practices so the manifestation of teacher adaptability via teacher adaptive practices is of interest to this review. Teacher adaptive practices may determine if the acclimation of the TAfLLT has a positive or negative outcome.

Teacher adaptability is salient to acclimation as the introduction of the TAfLLT provides a double dose of variability, novelty and uncertainty. The introduction of the tool provides the novelty, but its effective application guarantees a continuous bout of uncertainty for the teacher as they respond to the variability in student learning unlocked by the AfL strategies. It can be argued, therefore, that the acclimation is dependent on the capacity of the teacher to adopt adaptive practices.

The tripartite model of adaptability is represented by a nine item self-report questionnaire with three items each on cognitive, behavioural and affective regulation (Collie & Martin, 2016a, 2016b, 2017; Martin, Collie, Nejad, Colmar, & Liem, 2015). Cognitive adaptability refers to an individual's capacity to adjust their thinking to constructively deal with change, novelty and uncertainty. Affective adaptability refers to the modification of emotions in response to environmental change, uncertainty and novelty. Behavioural adaptability refers to an individual's ability to problem solve and act in response to these

changes to enhance personal and/or group outcomes. All three domains of teacher adaptability are in play when the TA/LLT is implemented by a teacher.

The teacher adaptive practice scale is a translation of the behavioural domain of the teacher adaptability scale to 15 classroom observations indicators (Author, 2016; Author, 2018). The two scales can be employed together as a measure of teacher adaptability and teacher adaptive practices. As such, it can be deployed as a measure of the degree of acclimation of the TA/LLT in this study according to the position argued in this review that acclimation is dependent on teacher adaptability.

Methodology

The A/L genotype for the teachers in the sample for this study was measured using the Teacher Assessment for Learning Literacy Tool (TA/LLT) (Author, 2016). Six teachers with high scores from their self-assessment on the TA/LLT were asked about their assessment for learning classroom practices, or phenotype, in interviews. This interview data was analysed for what it revealed about their ability to adaptively implement the A/L strategies that they perceived that they were using correctly. The domain specific Teacher Adaptability instrument based on the Adaptability scale (Martin et al., 2012; Martin, Nejad, Colmar, & Liem, 2013) and Teacher Adaptive Practice Scales (Author, 2016; Author, 2018) were employed as an analytical framework to code the teacher's responses.

The data from this study were drawn from a PhD study on the development and validation of a teacher assessment for learning literacy tool (TA/LLT) (Author, 2016) that had gained ethics approval from the host university. Thirty-five teachers were invited to engage in self-assessment using the teacher assessment for learning literacy tool (Author, 2016). Eight teachers were identified as potential participants of the study by their high scores. An invitation was sent to these teachers and six of them agreed to be interviewed.

The interview was conducted using the guiding questions that asked about their response to the assessment activities and their suggestions for further improvement of their teacher's assessment practices (see Appendix A). All interviews were digitally recorded and transcribed. Copies of the transcript were given back to participants for member checking. The teachers' responses were coded using the nine items on the domain-specific Teacher Adaptability Scale (see Appendix B) and the 15 items on the Teacher Adaptive Practice Scale (see Appendix C). The scales were employed as a general analytical framework rather than for measurement of very specific behaviours as one would do in a classroom observation. The responses were coded for evidence of low or high adaptive practice with reference to salient items from either scale. There were more codes recorded using the Teacher Adaptive Practice (TAP) Scale (see Appendix C) as the teachers spoke more of their practices than their general disposition. The responses coded as low were grouped under the category of rigid phenotype and the responses coded high were placed in the category of plastic phenotype. The two categories of rigid and plastic phenotype are reported in the next section of the paper.

Findings

The findings of this study must be read with the recognition that these six teachers self-selected as having the genotype for A/L on the TA/LLT. They were abreast of the principles of A/L yet their responses suggest that two categories of phenotypes, rigid and plastic, characterised their practical application of these principles.

Rigid Phenotype

A rigid phenotype is expressed in teachers' responses that reveal a one-size-fits-all approach to assessment that values standardisation and uniformity. There is little negotiation of learning activities with students as the teachers teach to the plan instead of their students. Teachers in this category also do not consider individual differences in relation to their choice of assessment strategies.

A rigid phenotype precludes the use of formative assessment to differentiate responses to individual students. This may involve the rigid implementation of assessment for learning strategies, "whether they are comfortable or not, they need to engage in peer assessment. I strongly believe that they can learn from it even if they dislike it" (T3 Interview). A rigid implementation of another AfL strategy in exemplars is evident in the response of another teacher:

As recommended, we need to have three sets of exemplars. I have the best, average and low-quality examples. I give them all to students to show them a range of examples, then ask them to take note how the previous students have completed the task (T5 Interview).

The rigidity is accompanied by what Alfie Kohn (2005) referred to as the Better Get Used To It (BGUTI) principle, "They have to learn the reality in assessment. It is uncomfortable, and it can cause so much anxiety, but that is what our educational system is" (T5 Interview). The harsh reality of assessment for many students in our schools is the dreaded oral presentation, "All of them should participate in the oral examination. I know I can see some students who are uncomfortable talking in front of the class, but that's the design of my assessment (T3 Interview). They need to cope with it." Rigidity is also associated with a penchant for uniformity, "Having a uniform assessment task is fair for all. It is easier to compare the performance of students" (T5 Interview). As implied by this response, teachers who are rigid in AfL implementation are adhering to a norm-referenced interpretation of achievement, rather than tracking the progress of individual students.

Non-adaptive, or rigid, teachers teach the plan rather than their students. There is a false conflation between efficiency and quality, "I follow what is written in my lesson plan. I know, I will get penalised if I deviate from it. You know, to be safe, you have to follow the system" (T3 Interview). This leads to a model of delivery rather than teaching:

...for as long as more than half of the students are getting passing marks, I am happy with it. I do not like to think that I am effective or what, I would like to think that I am delivering the lesson plan. If I have followed it, I guess I am doing my job (T3 Interview).

The delivery must run on time which results in an efficient but unresponsive implementation of AfL strategies:

The lesson went well. All the activities were completed although some students were too slow. I had to keep reminding them of the time. I always aim to have as many assessment activities as possible – questioning, peer feedback, use of exemplars, explaining the learning outcomes, and sometimes if I my lesson plan is too long, I only print the learning outcomes and give to them (T5 Interview).

The problem for learners when their teachers equate efficiency with efficacy is well known and was one of the reasons behind the development of assessment for learning strategies. A fixation with delivering rather than teaching can be added to standardisation and uniformity as characteristics of a rigid approach to the implementation of AfL strategies.

Plastic Phenotype

Differentiated assessment for learning involves seeing the students in the classroom, checking in on their learning progress and changing practice in response to this. These are all expressions of a plastic phenotype that results in a positive acclimation process for the TA/LLT.

Teachers with plasticity see beyond the constraints of a linear lesson plan to the students they are teaching:

Your lesson plan is just a plan and it should not be taken as a rigid step by step process. I guess, you need to be ready with any situation that might come. You need to have a clear understanding that teaching and assessment processes are very unpredictable, and you need to respond to every situation in favour of the students (T4 Interview).

Teaching the students rather than the script expands the teaching and learning repertoire in the classroom, “The purpose of teaching is to help students achieve the learning outcomes and not to standardise the ways of achieving them” (T1 Interview). This flexibility is reflected in the response of another teacher:

...if you shift your focus to individual achievement, you tend to be more flexible with activities and assessment strategies. Your main disposition is to ensure that each student is progressing at a certain speed and at a certain level of standard (T2 Interview).

This plasticity in the implementation of assessment for learning strategies depending on the students is also evident in the response of another teacher, “I planned to use self-assessment but when I was giving instruction, I saw in their face that they (students) were not ready, so instead, I went to discuss the rubrics for the whole period” (T4 Interview). This plasticity extends to the simultaneous use of multiple strategies for another teacher:

It's like you are armed with many things, and you just have to pull out whatever is needed in that particular time. It may not be what is in your lesson plan, or sometimes you have to combine different approaches at one time to meet the needs of the students (T6 Interview).

A plastic phenotype is evident when a teacher checks in on their students' progress and make changes to their practice in accordance with what they discover. The following excerpt from a teacher interview depicts this ‘check-in and change’ mode:

I have multiple choice questions and the percentage of students who get the correct answer gives me an idea if I need to repeat the explanation or do I need to continue. It is a very helpful tool as diagnostic not only for students but more on me to find out what topic do I need to take time (T2 Interview).

Another teacher spoke of how they learnt to check-in and change from a mentor colleague:

She always emphasised to me that I need to respond to the needs of the students and I need to be very observant to the behaviour of my students while I am teaching. If they are enjoying, then I need to continue what I am doing, but if half of the class is unsettled or disinterested, then I need to try to impose classroom management, but if it doesn't work, then she said, I need to change my approach right away because my approach may not be appropriate for that day and for that content (T6 Interview).

A change in practice is a moral imperative for a teacher who is adept at observing or checking in on how their students are progressing: “Well, if you are observant, you would know how to teach properly. Just look at how your students are engaging in self-assessment. If they have difficulty in understanding the criteria, then go and explain” (T1 Interview).

Group work is often cited as a talisman of progressive teaching and collaboration between learners is a strong feature of AfL. However, it does require adaptability in its implementation by the teacher. This is evident in the following two interview excerpts from teachers in this study:

I give freedom to my students to decide on how they can demonstrate their learning. There are those who wanted a group work but others prefer individual work. For as long as they can demonstrate their learning, I am fine whatever they want. Although it is a bit challenging to mark a group work, I always interview individual members of the group to validate their learning (T2 Interview).

I keep a lot of exemplars across a range of performance. Every time I use them, I group students based on their ability and give the appropriate exemplars for each group. For example, for the top of the class, I give the best exemplar and challenge to produce output better than it, and for those who are average, I give also those exemplars which have average marks. The philosophy behind doing this, is I think, uhmm, I think you have to manage communicating your expectations to students. I am afraid those low performing when given the best exemplars they might find the task difficult to complete (T4 Interview).

Both excerpts reveal that adaptive implementation of group work takes some thought and involves extra work. This insight was shared by other teachers who revealed that adaptive teaching is not always the easiest path to take as a teacher, “It’s way, way difficult to teach this way, with so much adjustment in your assessment approaches, but the joy comes when you see that students are happy, and their achievement is high” (T1 Interview). Another teacher spoke of the need to provide a rationale to their supervisors for their adaptability:

The principal keeps an eye on me because during classroom observation, I was not following some aspects of my lesson plan. During the post-observation conference, she pointed out some activities that I did not follow, and I explained to her why I made a decision to change my strategy, and she was able to understand it. In fact, after she has understood my explanation, she commended me for it (T6 Interview).

Plasticity in the expression of AfL in the classroom is evident when teachers teach their students rather than to the plan, they check in on students’ progress and make changes to their practice in situ. Teachers acknowledge that this is not the easiest path to take as a teacher, but they claim that their reward is student engagement and achievement.

Discussion

This study began with a self-selected group of six teachers who were chosen because they rated themselves highly on the TAfLLT. Their self-rating did not always match their responses when they were interviewed about their AfL. This mismatch suggests that there may be a dichotomy of rigid and plastic practices when it comes to teachers’ implementation of AfL. The plasticity of teacher adaptive practices permits acclimation, or successful implementation of AfL whilst rigidity produces effects that are often counter to the principles of AfL.

These findings have implications for the designers of teacher professional learning programs who need to consider the environmental and internal pressures that impact on the acclimation of their target phenotype or teacher practice. The TAfLLT is an empirically validated and teacher-friendly instrument (Author, 2016). It leads the teacher through gradated levels of expertise in the application of AfL strategies and it assumes that self and peer assessment will drive a robust community of practice. In other words, the TAfLLT is

enveloped by a theory of learning that strives to create the optimum environmental conditions for the implementation of the AfL. However, when teaching teachers as in teaching students we cannot assume that doing x will always equal y (Hattie & Donoghue, 2016). The findings of this study, although limited by the size of the sample, suggest that teacher disposition towards adaptability may be an intervening variable that either assists x to equal y or prevents it.

The challenge of designing a responsive teacher professional learning program is not dissimilar to the challenge faced by a teacher wishing to implement AfL strategies in their classroom. What one needs is a healthy repertoire of validated strategies and an adaptive schedule that is agile enough to respond to the learning needs of individual teachers rather than assuming that one-size-fits-all. The self-guided and peer-scaffolded learning progression of the TAfLLT does allow for teachers to move through the levels at their own pace. The findings of this study suggest that two more measures are required to ensure that, (a) teachers have the required adaptive disposition to progress, and (b) there is evidence that there is fidelity of implementation practices as observed in the classroom.

There are two validated instruments with sound psychometric properties that might be used to measure the existing adaptive dispositions of teachers who wish to use the TAfLLT. The first is the teacher adaptability scale (Collie & Martin, 2017) that has been reviewed already in this paper and the second is a Situated Judgment Test (Klassen et al., 2017). Situated Judgment Tests have been used in teacher selection to test for all kinds of target teacher dispositions. It is conceivable that a Situated Judgment Test could be written with items that ascertain teacher dispositions on scenarios that are like the interview excerpts featured in this paper. Both instruments would be used as improvement measures (Bryk, 2015) to gauge existing teacher dispositions so that they might be placed on the right starting level of the TAfLLT or even work through some pre-requisite activities designed to modify their level of adaptability before they begin.

The teacher adaptive practice scale (Author, 2016) could be used to measure the fidelity of the teacher's implementation of the AfL to their self-reporting ratings on the TAfLLT. The classroom observation would also be used as an improvement measure (Bryk, 2015) defined as formative assessment focusing on teacher growth in contrast to evaluation as summative assessment related to compliance (Derrington & Kirk, 2016). This action is supported by another study that concluded that it would be useful for administrators to distinguish between the evaluative and professional learning functions of classroom observation (Conley, Smith, Collinson, & Palazuelos, 2016).

Conclusion

This study examined how the interview responses of six teachers compared with their high self-reported ratings on the Teacher Assessment for Learning Literacy Tool. The study found that the selective environmental pressure of the TAfLLT was not enough for all teachers to activate phenotype plasticity in their classroom practices. These findings are qualified because of the small sample size and they warrant further investigation with a larger sample of teachers but there is enough evidence to suggest some implications for the designers of teacher professional learning programs.

The implications are that there may need to be a repertoire of measures deployed flexibly to ensure fidelity of validated and well-designed teacher professional learning interventions such as TAfLLT. We suggested that the teacher adaptability scale, a teacher selection tool such as a situated judgment test and the teacher adaptive practice scales might be employed in concert with the TAfLLT to establish if the teacher has the adaptive

disposition and practices required to implement the program consistent with the designers' intent.

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Appendix A: Interview Questions

Interview Questions

1. What do you think about the usefulness of the tool in shaping your assessment practices?
2. How did you feel about your AfL implementation?
3. What are some indicators in the tool that you have implemented in your classroom? Can you elaborate on how did you implement them? (probing questions can be asked like: what else can you say about that? can you give more examples? is there anything else you can add?)
4. What other assessment practices did you use apart from those indicated in the tool? What are your bases for using those?
5. How did your students react to assessment strategies that you used? Was that what you expected?
6. How did you ensure that the assessment strategies you used brought significant improvement to student learning?
7. Can you describe any particular difficulty you have encountered in using various assessment strategies?
8. How consistent your actual practice was with your assessment plan? Have you had any experience where your plan was not fully implemented? (if the answer is yes, ask, What were the factors? How did you respond to it? What did you do? Why did you do that?)
9. What/who influence you in your assessment practices?

10. What, if anything, would you change in your assessment practices?
11. To sum up your assessment practices, can you explain your own philosophy in assessment?

Closing question

- wrap up the key points and ask “is this an adequate summary?”
- review the purpose of the interview and then ask the interviewee, “have we missed anything?”
- thank him/her

Appendix B: Teacher Adaptability Scale

1. In the classroom, I am able to think through a number of possible options to assist me in a new situation.
2. In the classroom, I am able to revise the way I think about a new situation to help me through it.
3. I am able to adjust my thinking or expectations in the classroom to assist me in a new situation if necessary.
4. In the classroom, I am able to seek out new information, helpful advice, or useful resources to effectively deal with new situations.
5. In uncertain situations that arise in the classroom, I am able to develop new ways of going about things (e.g., a different way of doing something or finding information) to help me through.
6. To assist me in a new situation that arises in the classroom, I am able to change the way I do things if necessary.
7. In the classroom, I am able to reduce negative emotions (e.g., fear) to help me deal with uncertain situations.
8. When uncertainty arises in the classroom, I am able to minimise frustration or irritation so I can deal with it best.
9. To help me through new situations that arise in the classroom, I am able to draw on positive feelings and emotions (e.g., enjoyment, satisfaction).

Appendix C: Teacher Adaptive Practice Scale Scoring Guide

	Indicator	Low	High
1	The teacher modifies learning goals in response to formative assessment	Teacher did not undertake any formative assessment	Teacher checks for student understanding and makes changes to the lesson in response
2	The teacher modifies their instructions during the lesson to increase learning opportunities	Instructions given once and in one modality to the whole class	The teacher did an impromptu demonstration to a small group using the classroom globe in response to student questions about international time zones
3	The teacher uses formative assessment to differentiate their responses to individual students	The teacher asks students to move to the true or false side of the room but does not follow up with why questions	Teacher sets Do Now task at the beginning of the lesson, helps students with the task and asks questions about the task when all students have attempted it.
4	The teacher negotiates learning activities with students, ensuring these are aligned with learning goals	All students completed the same activity at the same time	The teacher used students' misconceptions as a guide to the learning activity that was chosen
5	The teacher prompted students to discover key concepts through responsive open ended questions	Teacher used shallow questions that did not require deep conceptual responses from the students	“Why is it expensive to make things in Australia?” “How has technology changed religion?” “In which direction does the water flow into the drain in the Northern and Southern Hemisphere?”
6	The teacher prompted students to express their thinking and used this as a springboard for learning activities	The teacher used ‘guess what is in my head’ questions; “It starts with...?”	The teacher asked the students to annotate their notes with an ‘E’ if they required more evidence
7	The teacher uses a thinking routine to prompt deeper exploration of concepts or skills.	The steps I would like you to take are: Decode, Position, Read the Poem, Write your Response”.	Teacher used a ‘See, Think, Wonder’ to prompt students to think metaphorically on a concept
8	The teacher prompted students to demonstrate open-mindedness and tolerance of uncertainty.	Teacher answered big science questions directly instead of asking them why	The teacher explored the different definitions of a concept evident across different sources to demonstrate the contested and uncertain nature of it

9	The teacher provided a synthesis of class generated ideas	Teacher uses Initiate, Response, Evaluate to individual student answers	"I feel if we joined these last three responses we should have a good answer on identity"
10	The teacher links, when appropriate, lesson concepts to larger disciplinary ideas	Teacher talk focused on the execution of the learning activity rather than the underlying big idea	The teacher linked the preservation of vegetables by bottling to the chemical processes
11	The teacher provided analogies and metaphors to increase learning opportunities	Teacher does not use analogy and metaphor when the opportunity arises	The teacher used an image of a waterfall to assist student understanding of the life cycle of a business. The teacher roleplayed a character in the text to expand understanding.
12	The teacher demonstrated flexible pacing of lesson in response to student learning needs	Teacher adheres to their script without checking in with students to see if they understood the concept	The duration of each learning activity is contingent on student understanding
13	The teacher demonstrated responsive use of literacy/numeracy interventions	No dynamic literacy/numeracy interventions evident	Teacher identified the word "essential" as expressing high modality Teacher used a think-aloud process to identity story retelling in literary analysis as a practice to be avoided
14	The teacher creates groups of students based upon formative assessment	Students not grouped or are in previously assigned table groups	Students moved into groups based on a self -rating of their knowledge